

(12) INTERNATIONAL APPLICATION PUBLISHED UNDER THE PATENT COOPERATION TREATY (PCT)

(19) World Intellectual Property Organization  
International Bureau



(43) International Publication Date  
21 December 2006 (21.12.2006)

PCT

(10) International Publication Number  
**WO 2006/134689 A1**

(51) International Patent Classification:

H01L 33/00 (2006.01) H01L 21/285 (2006.01)  
H01S 5/042 (2006.01) H01L 29/45 (2006.01)

(21) International Application Number:

PCT/JP2006/303523

(22) International Filing Date:

21 February 2006 (21.02.2006)

(25) Filing Language:

English

(26) Publication Language:

English

(30) Priority Data:

2005-172585 13 June 2005 (13.06.2005) JP

(71) Applicant (for all designated States except US):

KABUSHIKI KAISHA TOSHIBA [JP/JP]; 1-1, Shibaura  
1-chome, Minato-ku, Tokyo, 1058001 (JP).

(72) Inventors; and

(75) Inventors/Applicants (for US only): SAITO, Shinji.  
NUNOUE, Shinya. OKA, Toshiyuki.

(74) Agents: MIYOSHI, Hidekazu et al.; Toranomon Koto-  
hira Tower, 2-8, Toranomon 1-chome, Minato-ku, Tokyo,  
1050001 (JP).

(81) Designated States (unless otherwise indicated, for every

kind of national protection available): AE, AG, AL, AM,  
AT, AU, AZ, BA, BB, BG, BR, BW, BY, BZ, CA, CH, CN,  
CO, CR, CU, CZ, DE, DK, DM, DZ, EC, EE, EG, ES, FI,  
GB, GD, GE, GH, GM, HR, HU, ID, IL, IN, IS, KE, KG,  
KM, KN, KP, KR, KZ, LC, LK, LR, LS, LT, LU, LV, LY,  
MA, MD, MG, MK, MN, MW, MX, MZ, NA, NG, NI, NO,  
NZ, OM, PG, PH, PL, PT, RO, RU, SC, SD, SE, SG, SK,  
SL, SM, SY, TJ, TM, TN, TR, TT, TZ, UA, UG, US, UZ,  
VC, VN, YU, ZA, ZM, ZW.

(84) Designated States (unless otherwise indicated, for every

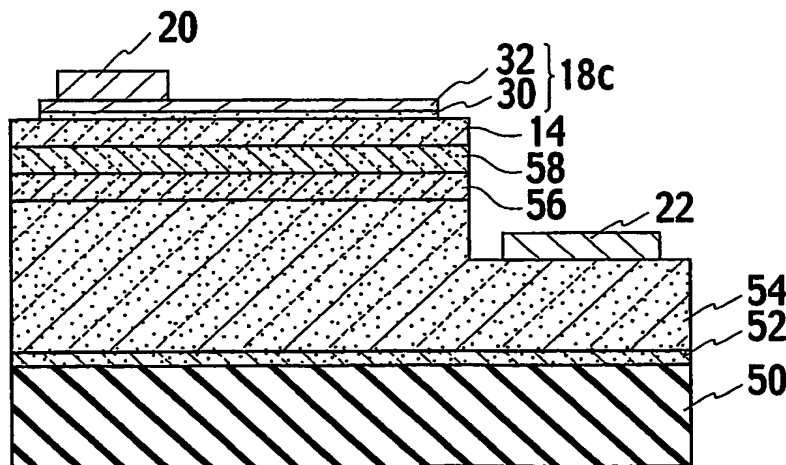
kind of regional protection available): ARIPO (BW, GH,  
GM, KE, LS, MW, MZ, NA, SD, SL, SZ, TZ, UG, ZM,  
ZW), Eurasian (AM, AZ, BY, KG, KZ, MD, RU, TJ, TM),  
European (AT, BE, BG, CH, CY, CZ, DE, DK, EE, ES, FI,  
FR, GB, GR, HU, IE, IS, IT, LT, LU, LV, MC, NL, PL, PT,  
RO, SE, SI, SK, TR), OAPI (BF, BJ, CF, CG, CI, CM, GA,  
GN, GQ, GW, ML, MR, NE, SN, TD, TG).

Published:

— with international search report

For two-letter codes and other abbreviations, refer to the "Guid-  
ance Notes on Codes and Abbreviations" appearing at the begin-  
ning of each regular issue of the PCT Gazette.

(54) Title: SEMICONDUCTOR DEVICE, METHOD FOR FABRICATING AN ELECTRODE, AND METHOD FOR MANU-  
FACTURING A SEMICONDUCTOR DEVICE



(57) Abstract: A semiconductor device includes a p-type nitride semiconductor layer (14); and a p-side electrode (18) including a  
palladium oxide film (30) connected to a surface of the nitride semiconductor layer (14).

WO 2006/134689 A1